WHAT IS CLAIMED IS:

1. A dual band linear antenna array, comprising four hard linear conductors to form a radiator, wherein the conductors are equidistantly rooted at four corners and parallel to each other, wherein three of the conductors have a first length of one quarter wavelength of a first electric wave to be transmitted and received, and one of the conductor has a second length of one quarter wavelength of a second electric wave to be transmitted and received, the first length is shorter than the second length, and the first electric wave has a frequency higher than that of the second electric wave.

2. The antenna array of Claim 1, wherein the roots of the conductors are serially connected to a signal feed terminal, and the conductors are connected to a copper tube via a coaxial cable external conductor.

3. The antenna array of Claim 1, wherein the conductors include non-insulated bare wires.

4. The antenna array of Claim 1, wherein each of the conductors has a rectangular cross section.

5. The antenna array of Claim 1, wherein the roots of the conductors inserted in a positioning board made of insulation material.

6. The antenna array of Claim 1, wherein the conductors include magnet wires.

7. The antenna array of Claim 1, wherein each of the conductors has a circular cross section.

8. A dual band linear antenna array, comprising three hard linear conductors to form a radiator, wherein the conductors are equidistantly rooted at three corners and parallel to each other, wherein two of the

conductors have a first length of one quarter wavelength of a first electric wave to be transmitted and received, and one of the conductor has a second length of one quarter wavelength of a second electric wave to be transmitted and received, the first length is shorter than the second length, and the first electric wave has a frequency higher than that of the second electric wave.